

**Topsoil Handling During Operations**Removal

The area from which topsoil has been removed is 34.2 acres and includes poorly developed soils. Using dozers and front end loaders, the soil was scraped from the surface and dumped at a site near the facility location. The topsoil was removed as a separate operation from areas to be disturbed by surface installations such as roads and areas upon which support facilities are sited. Approximately 750 cubic yards of topsoil will be stored in the left hand fork of Deadman Canyon for use during reclamation of the left fork fan installation. (See Plate LF-1.) Topsoil will be removed from any additional area disturbed during construction of the blowing ventilation fan to be located north of the shop. Topsoil salvaged from this area will be added to topsoil storage pile "G".

Storage

The topsoil storage areas are shown on Plate 6. The topsoil has been segregated, stockpiled, and protected from wind and water erosion and contaminants through revegetation and the use of berms.

Surveys conducted on the topsoil piles which were drawn into plans and profiles are now included in the plan in Volume II, Plates 37 and 36. This shows volumes stored currently.

The completed disturbance which reports to sedimentation Pond E is 9.96 acres. Please review the top soil summaries which show totals and deficiencies in R645-301-224.

The new substitute topsoil pile plan and profile is included.

The new substitute topsoil will be protected by the use of vegetation.

**R645-301-231.****GENERAL REQUIREMENTS****R645-301-231.100****REMOVAL AND STORAGE**

See R645-301-212.

**R645-301-231.200.****SUITABILITY OF TOPSOIL  
SUBSTITUTES**

See R645-301-224.

**R645-301-231.300.      TESTING PLAN**

See R645-301-224.

**R645-301-231.400.      TOPSOIL HANDLING AND STORAGE  
AREAS**

See R645-301-212.

**R645-301-232.      TOPSOIL AND SUBSOIL REMOVAL**

See R645-301-212.

**R645-301-232.100.      TOPSOIL SEGREGATION**

See R645-301-212.

**R645-301-232.200.      INSUFFICIENT QUANTITY OR POOR  
QUALITY**

See R645-301-224.

**R645-301-232.300.      TOPSOIL LESS THAN SIX INCHES  
THICK**

N/A

**R645-301-232.400.      TOPSOIL REMOVAL FOR MINOR  
DISTURBANCES**

N/A

**R645-301-232.410.      SMALL STRUCTURES**

N/A

**R645-301-232.420.      PROTECTION OF EXISTING VEGETATION  
AND EROSION PROTECTION**

Disturbed areas no longer required for the conduct of mining operations have been revegetated. Upon completion of mining activities, topsoil will be distributed and reclamation will commence as outlined in re Reclamation. Andalex will adhere to all UDOGM guidelines.

**R645-301-232.500.      SUBSOIL SEGREGATION**

N/A

Reclamation Plan are applicable. Where necessary, original maps have been revised to indicate the newly acquired lease areas and these revisions are included with this submittal as figures or as plates in Volume II. An archaeological clearance for the Left Hand Fork fan installation and the new blowing ventilation fan can be found in Appendix C along with all other previously conducted archaeological surveys.

**R645-301-411.141. CULTURAL AND HISTORIC RESOURCES  
MAPS**

See Appendix C.

**R645-301-411.141.1 PUBLIC PARKS AND LOCATIONS OF ANY  
CULTURAL OR HISTORICAL RESOURCES**

N/A

**R645-301-411.141.2 CEMETERIES**

There are no cemeteries or burial grounds in or within 100 feet of the permit area.

**R645-301-411.141.3 NATIONAL SYSTEM OF TRAILS OR THE  
WILD AND SCENIC RIVERS SYSTEM**

N/A

**R645-301-411.142. COORDINATION WITH THE STATE  
HISTORIC PRESERVATION OFFICER  
(SHPO)**

Appendix C.

**R645-301-411.142.1 PREVENTION OF ADVERSE IMPACTS**

Appendix C.

**R645-301-411.142.2 VALID EXISTING RIGHTS OR JOINTS  
AGENCY APPROVAL**

Appendix C.

**R645-301-411.143. IMPORTANT HISTORIC AND  
ARCHAEOLOGICAL RESOURCES THAT MAY  
BE ELIGIBLE FOR LISTING ON THE  
NATIONAL REGISTER OF HISTORIC  
PLACES**

Appendix C.

Gilson Seam - underlying this seam is interbedded sandstone, siltstone, shale, and coal riders of the Kenilworth Member.

Centennial Seam - underlying this seam is interbedded sandstone, siltstone, and shale, and coal riders of the Kenilworth Member.

Lower Sunnyside Seam - underlying this seam is barrier beach sandstone, the Lower Sunnyside Sandstone of the Sunnyside Member.

It should be noted however, that the immediate "floor" below the seams is sandstone in the case of the Lower Sunnyside and Aberdeen; and beneath the Gilson, and Centennial, siltstone.

#### **Pyritic Content (Laboratory Analyses)**

Complete analyses of these strata are included in Appendix E.

#### **Potential Alkalinity (Laboratory Analyses)**

Complete analyses of these strata are included in Appendix E.

#### **Clay Content (Laboratory Analyses)**

Complete analyses of these strata are included in Appendix E.

### **R645-301-512.200. PLANS AND ENGINEERING DESIGNS**

#### **Existing Structures**

All existing structures are situated on the Zion's fee land, on federal lease SL-027304, or on right-of-way UTU-62045 and are shown on Plate 6. There are no structures existing as part as Andalex's facility which were constructed prior to 1980. Originally it was anticipated that all buildings and structures were to be completed during the first five year permit term. Obviously this is not the case since the Aberdeen Mine has only recently been completely finished to this date. Plate 6 depicts the Aberdeen Mine with the surface facilities completed in early 1990. A new fan for the Aberdeen Mine will be constructed in the left fork of Deadman Canyon. Underground rock tunnels access the Centennial Seam. See 1.1, 2.1-1, 2.1-4.

Existing structures include the following:

Bathhouse (5)	14' x 60'
Mine Water Storage Tanks (3)	12' x 16'
Warehouse (1)	14' x 60'
Lamphouse (2)	40' x 40'
Main Substation	60' x 100'
Office Building	28' x 60'
Mine Fans (4)	88"
Portals (15)	6' x 20'
Culinary Water Tanks (3)	12' x 10'
Shop	80' x 120'

All existing structures are situated on the Zion's fee land, on federal lease SL-027304, or on right-of-way UTU-62045 and are shown on Plate 6. There are no structures existing as part as Andalex's facility which were constructed prior to 1980. Plate 6 depicts the Aberdeen Mine with the surface facilities completed in early 1990. No new structures on the surface will be required to mine the Centennial and Aberdeen Seams on any lease including the new AEP Lease. Underground rock tunnels access the Centennial Seam. See 1.1, 2.1-1, 2.1-4. Existing structures include the following:

Bathroom (5)	14' x 60'
Mine Water Storage Tanks (3)	12' x 16'
Warehouse (1)	14' x 60'
Lamphouse (2)	40' x 40'
Main Substation	60' x 100'
Office Building	28' x 60'
Mine Fans (4)	88"
Portals (15)	6' x 20'
Culinary Water Tanks (3)	12' x 10'
Shop	80' x 120'

It should be noted that a new blowing ventilation fan is proposed as shown on Plate 6. This will be a forced air fan and shaft to the Aberdeen Seam below. The fan will be located very close to the existing edge of the disturbance as shown on Plate 6.

Upon completion of mining activities, the portals will be sealed according to existing state and federal regulations and all buildings and structures not being utilized as part of the reclamation sequence, will be removed.

#### **R645-301-526.111. LOCATION**

See R645-301-110.

#### **R645-301-526.112. PLANS OR PHOTOGRAPHS**

See R645-301-110.

#### **R645-301-526.113. DATES OF CONSTRUCTION OF EXISTING STRUCTURES**

See R645-301-110.

#### **R645-301-526.114. MONITORING DATA**

N/A

It is very unlikely that a mine discharge will occur from any of the permanently sealed mine portals, although each seal will be equipped with a drainage pipe described above. To date, Andalex has encountered dry mining conditions and all portals in all three mines drift into the mountain in a down dip direction. If a discharge were to occur, it would only be after the entire pillared out workings had filled first. Then only would the static head against the seal allow any discharge. There is no way of knowing or estimating the mine discharge rate.

As maintained above, Andalex will monitor any discharge. Andalex's existing NPDES allows for a certain volume of mine discharge. This permit will be maintained after cessation of mining for the liability period until the bond is released.

The blowing fan ventilation shaft will be sealed by completely backfilling it from bottom to top. This shaft is 370' deep by 16' diameter, and will require approximately 2,755 cubic yards of backfill material. This backfill material will be hauled in from an offsite commercial gravel pit.

### **Temporary Cessation**

Whenever it is known that operations are to be temporarily ceased for more than 30 days, Andalex Resources will submit to the Division a notice of intention to cease or abandon the operations, in accordance with MSHA standards.

This notice will describe mitigation measures to be employed in accordance with the terms and conditions of the permit approval, such as a statement of the number of surface areas involved in the cessation, extent of sub-surface strata, prior reclamation efforts accomplished on the property, and identification of all backfilling, regrading, revegetation, environmental monitoring, underground opening closures and water treatment activities that will continue during the temporary cessation.

Temporary closing of underground workings will be accomplished with chain link fence material as recommended by MSHA. This prevents access by unauthorized individuals during idle periods. It is not anticipated that once Andalex reaches its peak production that this will occur.

If underground openings are to remain inactive for a period greater than 90 days, such openings will be temporarily closed off from access. Such closures will consist of a chain link or other substantial wire mesh fabric fence placed over the portals to prevent public access while allowing for air flow. Locked gates may be installed in the portal to allow for mine inspection.

### **Casing and Sealing of Drill Holes**

All exploratory drill holes have been sealed with cement and all water wells have been cased with steel casing and will be maintained. After mining is completed, the water wells and monitoring wells will be sealed except in the event the state

engineer allows them to remain opened for other purposes.

**R645-301-529.200. UNDERGROUND MINING OPERATIONS**

**R645-301-529.210. TEMPORARILY INACTIVE OPERATIONS**

See R645-301-515.300.

**R645-301-529.220. RETURN UNDERGROUND DEVELOPMENT  
WASTE, COAL PROCESSING WASTE OR  
WATER TO UNDERGROUND WORKINGS**

See R645-301-515.300.

**R645-301-529.300. HOLES USED FOR BLASTING**

N/A

**R645-301-529.400. SURFACE MINING OPERATIONS**

N/A

**R645-301-530. OPERATIONAL DESIGN CRITERIA AND  
PLANS**

**Operation Plan: Existing Structures**

**Construction and Design of Surface Facilities**

**Existing Structures**

All existing structures are situated on the Zion's fee land, on federal lease SL-027304, or on right-of-way UTU-62045 and are shown on Plate 6. There are no structures existing as part as Andalex's facility which were constructed prior to 1980. Plate 6 depicts the Aberdeen Mine with the surface facilities completed in early 1990. No new structures on the surface will be required to mine the Centennial and Aberdeen Seams on any lease including the new AEP Lease. Underground rock tunnels access the Centennial Seam. See 1.1, 2.1-1, 2.1-4. Existing structures include the following:

Bathhouse (5)	14' x 60'
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It should be noted that a new blowing ventilation fan is proposed as shown on Plate 6. This will be a forced air fan and shaft to the Aberdeen Seam below. The fan will be located very close to the existing edge of the disturbance as shown on Plate 6.

Upon completion of mining activities, the portals will be sealed according to existing state and federal regulations and all buildings and structures not being utilized as part of the reclamation sequence, will be removed, according to the Reclamation Plan.

### **Construction Schedule**

All of the above structures have been completed, except the proposed new ventilation fan for the Aberdeen Mine. The earthwork for the Aberdeen Mine was completed in 1989. The surface facilities were in early 1990. Construction has been located and carried out so as to prevent and control erosion, siltation, water pollution, and damage to property. All facilities have been designed and constructed and will be maintained and used in a manner which prevents damage to wildlife and related environmental values. Any future construction will be conducted in a similar manner according to regulations regarding protection of the hydrologic system, etc. The rock tunnels for the Centennial Seam development were constructed in the spring of 1990 and completed late in 1990. As previously discussed this mining will require no new surface facilities.

### Construction Methods

#### **Major Equipment**

The portal and building sites were leveled using dozers, trucks, and loaders. At the building sites, the topsoil was removed and transported to a nearby area for storage.

All surface pads have been graveled and all other disturbed areas (pond embankments, etc.) have been reseeded.

**R645-301-531.**

### **GENERAL**

#### **Schedule of Construction, Mine Development, Mining and Reclamation**

All surface facilities have been constructed for the Pinnacle, Apex and Aberdeen Mines. Earthwork for the Aberdeen Mine was completed in 1989. The surface facilities for the Aberdeen Mine were completed in early 1990. No additional surface facilities are required for any new leases, however, as mentioned above, there is a proposed new ventilation fan for the Aberdeen Mine. There will be no additional construction activities or surface disturbance whatsoever in Hoffman Creek or Alrad Canyon.

However, Andalex does intend to add a fan installation in the left-hand fork of Deadman Canyon at some point in time. This installation will be according to measures outlined by the Bureau of Land Management as part of Right-of-Way U-64158. (Copy of Right-of-Way is included in Appendix B.) Andalex will submit detailed